

Application No. 09/845,985

REMARKS

Claims 1-4, 6-10, 12-21 and 48-54 are pending. By this Amendment, claim 11 is canceled without prejudice.

All of the pending claims stand rejected. Applicants respectfully request reconsideration of the rejections based on the following remarks.

Objection To Specification

The Examiner noted that the specification did not teach a material with a phosphate anion, a lithium cation and $\text{Fe}_3(\text{PO}_4)_2$. Applicants have canceled claim 11. Applicants thank the Examiner for a careful reading of the claims. In view of this amendment, Applicants respectfully request withdrawal of the objection to the specification.

Rejection Under 35 U.S.C. § 112

The Examiner rejected claims 1-4, 6-21 and 48-52 under 35 U.S.C. § 112, second paragraph as being indefinite. Applicants incorporate by reference their arguments from the Amendment of October 9, 2003. Applicants maintain that for continuous variables, the use of the term "about" expresses the natural uncertainty in the measurement of such a variable. With all due respect, the Examiner's assertions that there can ever be a "definite maximum value" do not account for the realities of actual measurements of continuous variable. Since the claims are definite to a person of ordinary skill in the art, Applicants respectfully request withdrawal of the rejection of claims 1-4, 6-21 and 48-52 under 35 U.S.C. § 112, second paragraph as being indefinite.

Application No. 09/845,985

Rejections Under 35 U.S.C. § 102(b)

The Examiner rejected claims 1-4, 6, 7, 10, 12, 16, 17, 19-21, 48-50 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 5,538,814 to Kamauchi et al. (the Kamauchi patent). Applicants incorporate by reference their arguments in the Amendment of October 9, 2003. In response to Applicants' arguments, the Examiner maintains that the reference teaches crystalline material. However, the Examiner has not clarified whether or not the reference discloses crystalline phosphates. Similarly, Applicants maintain that the reference does not teach phosphate powders with an average particle size within the range claimed by Applicants. Thus, Applicants maintain that the reference does not teach crystalline phosphate submicron particles. Applicants respectfully request reconsideration of the rejection based on the following comments.

For support for the disclosure of crystalline phosphate particles, the Examiner pointed to column 6, lines 1-20. However, this discussion noted by the Examiner seems to only be discussing oxides and not phosphates. Several materials are described in the Kamauchi patent including oxides and phosphates. See column 4, lines 13-24. The nature of the phosphate particles does not seem to be clearly described in the patent. Therefore, Applicants maintain that the Kamauchi patent does not teach crystalline phosphate particles. Furthermore, Applicants noted in the Amendment of October 9, 2003 the Kamauchi patent similarly does not teach phosphate particles with an average particle size less than a micron. Since the Kamauchi patent does not teach all of the claimed elements of Applicants' claimed invention, the Kamauchi patent does not prima facie anticipate Applicants' claimed invention. Applicants respectfully request withdrawal of the rejection of claims 1-4, 6, 7, 10, 12, 16, 17, 19-21, 48-50 under 35 U.S.C. § 102(b) as being anticipated by the Kamauchi patent.

Application No. 09/845,985

Rejection Over Goodenough et al. and Kamauchi et al.

The Examiner rejected claims 6-9 and 17-18 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 5,910,382 to Goodenough et al. (the Goodenough patent) and further in view of the Kamauchi patent. The Examiner cited the Goodenough patent for teaching lithium secondary batteries including LiFePO_4 and $\text{LiFe}_{1-x}\text{Mn}_x\text{PO}_4$, where x is between 0 and 1. The Examiner asserts that the teachings of the Kamauchi patent make it obvious to pulverize the lithium iron phosphate particles and lithium iron manganese phosphate particles of the Goodenough patent into powders with an average particle size less than a micron. Applicants maintain that the combined teachings of the Goodenough patent and the Kamauchi patent do not render Applicants' claimed invention prima facie obvious. Applicants respectfully request reconsideration of the rejection based on the following comments.

Applicants incorporate by reference their arguments from the Amendment of October 9, 2003. Applicants assert above that the Kamauchi patent does not teach submicron crystalline phosphate particles. The Examiner has noted that the Goodenough patent does not disclose particles with particle sizes as claimed by Applicants. Applicants note that the combined disclosures do not lead to Applicants' invention. In particular, the Kamauchi patent discloses pulverizing the particles to obtain desired particle sizes. However, grinding is notoriously ineffective at generating submicron particles for most materials. Therefore, a person of ordinary skill in the art would not consider the combined disclosures of the Kamauchi patent and the Goodenough patent as providing a reasonable expectation of success in pulverizing the materials of the Goodenough patent to produce particles with a submicron average particle size.

Since they do not provide a reasonable expectation of success, the combined teachings of the Kamauchi patent and the Goodenough patent do not render Applicants' claimed invention prima facie obvious. Applicants do not comment on other features of the Goodenough patent cited in the Office Action since they are presently moot, although Applicants do not

Application No. 09/845,985

acquiesce in the assertions. Applicants respectfully request withdrawal of the rejection of claims 6-9 and 17-18 under 35 U.S.C. § 103(a) as being unpatentable over the Goodenough patent and further in view of the Kamauchi patent.

Rejections Under 35 U.S.C. § 103(a) Over Kamauchi et al.

The examiner rejected claims 13-15 and 51-53 under 35 U.S.C. § 103(a) as being unpatentable over the Kamauchi patent. The Examiner asserts that the Kamauchi patent renders obvious Applicants' claimed invention based on various speculation. Applicants maintain that the Examiner has fallen far short of establishing prima facie obviousness of Applicants' claimed invention. Applicants respectfully request reconsideration of the rejections based on the following comments.

The present claims under consideration are directed to powders with extremely uniform submicron particles. With all due respect, Applicants believe that the rejection falls short for two reasons. First, with respect to motivation, the Examiner points to column 5, lines 30-35. This discussion only describes average particle size. This discussion does not relate to uniformity of the particles. Thus, the reference does not provide the motivation.

Furthermore, the Kamauchi patent describes pulverizing the powders. Grinding and the like is notorious for forming highly non-uniform materials. The Examiner asserted that "separating the materials" can be used to obtain the claimed uniformity. With all due respect, such a separation of submicron inorganic powders is not known. The Examiner has not provided any support for this assertion. If the Examiner is basing this assertion on personal knowledge, Applicants respectfully request an affidavit under 37 C.F.R. 1.104(d)(2) such that Applicants can provide corresponding refuting evidence. If this is not based on personal knowledge, Applicants respectfully request some documentary evidence to support the assertion.

Application No. 09/845,985

Due to a lack of motivation and a lack of teaching with respect to the claimed uniformity, Applicants assert that the Examiner has fallen short of establishing prima facie obviousness. Applicants respectfully request withdrawal of the rejection of claims 13-15 and 51-53 under 35 U.S.C. § 103(a) as being unpatentable over the Kamauchi patent.

Rejection Over Bodiger et al.

The Examiner rejected claim 54 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 5,849,827 to Bodiger et al. (the Bodiger patent). The Examiner asserts that the Bodiger patent teaches aluminum phosphate with a mean particle diameter of 1-50 microns. Applicants respectfully assert that the Bodiger patent falls significantly short of rendering Applicants' claimed invention prima facie obvious. Applicants respectfully request reconsideration of the rejection based on the following comments.

At column 7, lines 48-49, the Bodiger patent describes finely divided inorganic particles having particle sizes over a **nonsensical range**. The lower range given for their powders is 0.1 nm or 1 angstrom. The radius of oxygen alone is greater than an angstrom, and the radius of aluminum is about 0.5 angstroms. Applicants have attached appropriate pages from the CRC Handbook of Chemistry and Physics. Thus, aluminum phosphate particles **cannot** have a mean particle diameter of 0.1 nm. Also, the Bodiger patent does not describe how to make the powders or a source for the powders. The Bodiger patent does not explicitly recite aluminum phosphate powders with the specified particle sizes. The Examiner further noted that the Bodiger patent did not disclose crystalline aluminum phosphate particles.

Clearly, the Bodiger patent does not put crystalline aluminum phosphate particles with the claimed properties in the hands of the public. Therefore, the Bodiger patent does not render Applicants' claimed prima facie obvious. Therefore, Applicants

Application No. 09/845,985


respectfully request withdrawal of the rejection of claim 54 under 35 U.S.C. § 103(a) as being unpatentable over the Bodiger patent.

CONCLUSIONS

In view of the foregoing, it is submitted that this application is in condition for allowance. Favorable consideration and prompt allowance of the application are respectfully requested.

The Examiner is invited to telephone the undersigned if the Examiner believes it would be useful to advance prosecution.

Respectfully submitted,



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